

class of Cerealia; it is mentioned under that name by Lindley in his "Vegetable Kingdom"; and in the "Treasury of Botany" it is stated that "the large seeds yield a considerable amount of food to the wandering tribes of Indians, and feed immense flocks of wild swans and other aquatic birds. It grows well in Britain when it is once established, but it is liable to die away if not cared for." It is asserted, indeed, that many of the wandering tribes of native Indians depend on the harvest of Zizania, known by them as "Tuscarora," as their principal source of food during the winter; and that so palatable is the grain that people who, at the period when it is ripe, make their way into the region where it grows, never fail to bring home a sackful as a present to their friends.

It is not, however, as an article of food that we now call attention to the plant, but in consequence of its alleged value as a material for the manufacture of paper.* If all that is stated respecting it is confirmed, it will be a formidable rival to Esparto in the manufacture of the various kinds of printing paper, yielding fully as much of the raw material, and possessing the great and peculiar merit of being comparatively free from silicates; it is claimed, indeed, that paper made from it is quite as strong and flexible as that made from rags. It is easily bleached, economical in respect of chemicals, pure in colour, and the paper presents a surface of perfect evenness remarkably free from specks and blemishes. The paper has the further merit of receiving a very clear impression from the printer's types. It would appear, indeed, to possess all the merits, without any of the defects, of Esparto.

The Zizania belongs to the tribe Oryzeæ, closely resembling the rice-plant both in structure and habit, except that the flowers, instead of being perfect, are unisexual, but monoecious. The number of stamens in both plants is six. It is an aquatic plant, growing in swamps, ponds, and shallow streams, filling them up, during summer, with a dense annual growth. The average height is from 7 to 8 ft., but it not unfrequently reaches 12 or 14 ft. The district in which it appears to flourish most abundantly is the Canadian territory, on the shores of Lakes Erie, St. Claire, and Ontario, from whence it can easily be transported to Montreal, and shipped to any European port. It is stated that there will be no difficulty in obtaining an annual supply of 100,000 tons; but that the chief obstacle to its conveyance to Europe is the great bulk it occupies, and the consequent heavy freight, which seems at present to act as an almost entire prohibition on its importation.

NOTES

PROFESSOR MASKELYNE has offered to give a short course of lectures on Crystallography to those members of the Chemical Society who may be desirous of studying this subject. It is proposed, if a sufficient number of members intimate their intention of attending, that the lectures be delivered on Mondays and Fridays, at 8.30 P.M. during the months of November, December, and January, commencing on the 23rd inst. Professor Maskelyne hopes it will be understood that gentlemen attending those lectures will be prepared to devote some of their leisure to working at the subject in the manner to be indicated by the lecturer. Crystallography cannot be studied without geometrical reasoning, but it will be Mr. Maskelyne's endeavour to treat his subject with as small an amount of mathematical detail as is consistent with its due development. The lectures will be open to anyone introduced by a Fellow of the Chemical Society. It is particularly requested that members intending to attend these lectures will communicate their intention, previously to the 20th inst., to Dr. Russell. We congratulate the Chemical Society in having initiated such a movement. We hope the lectures will be largely taken advantage of, and that other societies will soon follow this excellent example.

* For the majority of the following particulars we are indebted to an article in the *Gardener's Chronicle*.

News has been received from the *Challenger* up to Sept. 8, giving an account of the voyage between the Fiji Islands and Torres Strait. Occasional squalls were met with, and the usual sounding, dredging, and trawling operations were carried on. Shortly after leaving Api Island, New Hebrides, soundings were taken in 2,650 fathoms, giving a bottom temperature of 35°.7, the same temperature being obtained at 1,300 fathoms. The same phenomenon occurred for some distance, leading to the conclusion that a valley exists at the place, surrounded by a ridge. Several new specimens of fish were found, and the naturalists explored Raine Island. From Cape York the ship proceeds through Torres Strait and Arafura Sea, visiting Manila and other places, and arriving at Hong Kong about the middle of the present month, where she will stay till the end of December. Letters should be addressed to Singapore till the mail of Jan. 22, 1875; then to Yokohama, Japan.

ON Tuesday evening the winter session of the Royal Geographical Society was opened by an address from the president, Sir H. C. Rawlinson, who reviewed the progress of discovery during the past year, and expressed a confident hope that a new polar expedition would be despatched under the auspices of her Majesty's Government in the course of the coming year. Lieut. Payer was present, and the secretary read his narrative of the Austrian Polar Expedition, the main details of which have appeared in NATURE. A letter was also read from Dr. Petermann, strongly urging upon her Majesty's Government the expediency of starting another polar expedition: this will be found in another column.

THE following, we learn from the *Times*, is the list of the new Council to be proposed for election at the anniversary meeting of the Royal Society on St. Andrew's Day, 30th inst.:—President, Joseph Dalton Hooker, C.B., M.D., D.C.L., LL.D.; treasurer, William Spottiswoode, M.A., LL.D.; secretaries, Prof. George Gabriel Stokes, M.A., D.C.L., LL.D., and Prof. Thomas Henry Huxley, LL.D.; foreign secretary, Prof. Alexander William Williamson, Ph. D.; other members of the Council—Prof. J. C. Adams, LL.D., the Duke of Devonshire, K.G., D.C.L.; John Evans, Pres. G.S., F.S.A.; Captain Frederick J. O. Evans, R.N., C.B.; Albert C. L. G. Günther, M.A., M.D.; Daniel Hanbury, Treas. L. S.; Sir John Hawkshaw, M.L.C.E.; Joseph Norman Lockyer, F.R.A.S.; Robert Mallet, C.E., M.R.I.A.; Nevil Story Maskelyne, M.A.; C. Watkins Merfield, Hon. Sec. I. N. A.; Prof. Edmund A. Parkes, M.D.; Right Hon. Lyon Playfair, C.B., LL.D.; Andrew Crombie Ramsay, LL.D.; Major-General Sir H. C. Rawlinson, K.C.B., and J. S. Burdon Sanderson, M.D.

THE Cambridge Board of Natural Sciences Studies have nominated Mr. F. M. Balfour, B.A., Fellow of Trinity College, and Mr. A. W. Marshall, Scholar of St. John's College, as students in the Zoological Station at Naples until the end of next summer.

THE Worshipful Company of Clothworkers have offered to the Board for Superintending Non-collegiate Students at Cambridge three exhibitions of the value of 50/- per annum each, to be awarded to non-collegiate students for proficiency in physical science, each exhibition to be tenable for three years, so that one will be available for competition annually. There will be an examination for one of these exhibitions on Thursday, January 14, 1875, in the Censor's Room, at 9 A.M. The exhibition will be open to all non-collegiate students who have already commenced residence, or those not in residence, provided they commence not later than Michaelmas Term 1875. Each candidate will have to satisfy the examiners in at least two of the following subjects:—Statics and dynamics, hydrostatics and pneumatics, heat; and may be examined in not more than two of the following:—Chemistry, botany, physical geography, including meteorology. Candidates

must send their names to the Rev. R. B. Somerset, Cambridge, on or before December 1, of whom further particulars may be obtained.

THERE will be an examination for Scholarships and Exhibitions at Christ's College, Cambridge, on April 6, 1875, and three following days, open to the competition of students who intend to commence residence in October 1875. Scholars will be elected for proficiency in one or more of the following subjects:—(1) Chemistry and chemical physics; (2) geology and mineralogy; (3) botany; (4) zoology, with comparative anatomy and comparative physiology. A candidate may select his own subjects, but will be required to show such knowledge of classics and mathematics as to afford reasonable expectation that he will pass the Previous Examination without difficulty. Every candidate must send his name to the tutor (Mr. John Peile, M.A.) on or before March 30, 1875, and if a candidate in natural science, must state the subject in which he is desirous of being examined.

WE regret to have to record the death at Chiswick on the 2nd inst. of Dr. Thomas Anderson, late Professor of Chemistry in the University of Glasgow. Dr. Anderson was born in 1819, and was educated at the University of Edinburgh. On leaving college he visited Stockholm, where he studied for some time under Berzelius, and afterwards went to Giessen and studied under Liebig. Returning to Edinburgh, he acquired considerable reputation by teaching chemistry in the Extra Academic Medical School at Edinburgh, and whilst so engaged received the appointment of Consulting Chemist to the Highland and Agricultural Society. In 1852 he succeeded Dr. Thomas Thomson as Professor of Chemistry in the University of Glasgow, and discharged the duties of the chair with great acceptance until 1869, when he was incapacitated from work by a paralytic seizure. Having had another attack of paralysis in May of the present year, he resigned his professorship in July last. Dr. Anderson was the author of several papers on the organic bases, especially those bases obtained from opium and coal-tar, and in the destructive distillation of animal substances. In a paper on "The Chemistry of Opium," read before the Chemical Society in 1862, he described a valuable method of extracting the alkaloids of opium, and determining their relative qualities.

DR. J. H. SLACK, one of the leading fish-culturists of the United States, and also well known both as a physician and naturalist, died at Bloomsbury, New Jersey, on the 27th of August last.

THE first part is just issued of the "Proceedings of the Physical Society of London," forming a volume of fifty-two pages, illustrated by two plates, and comprising reports of eleven papers read between March 21 and June 20, 1874. Among them is the very important one by Mr. Crookes, "On attraction and repulsion accompanying radiation." The Society meets fortnightly in the Physical Laboratory of the Science Schools at South Kensington, and now numbers about 130 members.

THE Society of Arts commences its winter session next Wednesday, and a busy and useful session it promises to be. There are the general evening meetings of the Society, the Cantor Lectures, the African, Chemical, and Indian Sections, and the Christmas Juvenile Lectures. This Society, as all societies should, seems to be getting more vigorous the older it grows, and between its lectures, its technological examinations, and its prizes, must be doing a great amount of good.

THE New Zealand Government has sent special agents over to England for the purpose of collecting a quantity of small birds of various kinds, and a colony of humble-bees, for introduction into that country. It is expected that the consignment will be ready for despatch in a few days. Another attempt will also be made this year to send a quantity of salmon over to the

antipodes, only 135 salmon being now alive out of the 120,000 salmon eggs which were despatched two years ago.

THE production of opium in Asia Minor, which in former years averaged annually from 2,000 to 3,000 baskets or cases, each containing 150 lbs., has of late years much increased, and the crop now averages from 4,000 to 6,000 baskets. Out of this quantity, which is shipped at Smyrna, the United States take above 2,000 cases. England at one time consumed a large proportion. The Dutch East India Company also for many years have purchased large quantities annually to send to the islands of Java, Batavia, and Sumatra, and of late years the consumption generally has largely increased, especially for North and South America and the West Indies. Turkey opium is always preferred in England before that of India, as it contains a much higher percentage of morphia than either Indian or Persian; it is on this account that the greater portion of the opium used for medicinal purposes both in Europe and America is the production of Asia Minor. The price of this opium in the market has advanced much of late; fifteen years ago the average price was about 15s. per lb., and it now realises about 1/. per lb., though the fair character even of this product has been tarnished by a system of adulteration which has prevailed during the past two years. About 300 cases of this adulterated opium have been sold in the period mentioned, so that purchasers are now very careful from whom they obtain the drug.

OLIVE oil is produced in large quantities in Tunis. The olive crops during the past two years have been so abundant that there is still a great deal of oil in the country, notwithstanding the immense quantities, amounting in all to 3,472 tuns, of the value of 125,893/, that have been shipped during the past year to Great Britain, France, and Italy. It is said that without a great reaction takes place in the oil trade in Europe, vendors in Tunis will be puzzled to know what to do with the supplies they will have on hand. The deposits, or tanks, in the town are said to be capable of containing 6,000 tuns of oil, but they were not clear of the old supplies before the new was ready to be brought in. So far as the working of the native oil-mills is concerned, it is stated that no improvement has taken place. An Italian company contemplates the introduction of a steam-mill. For this purpose the British vice-consular house and its premises have been bought, and are to be converted into a mill. Some years ago one was tried at Mehdia, but did not answer. A second was erected near Susa, with the view of buying up the refuse or oil-cake after passing the native mills, and submitting it to further pressure; but this in the hands of the natives blew up.

IT seems to be very probable that the cultivation of sugar in Porto Rico, which has to a great extent succeeded that of cotton, will eventually give place to the growth of coffee on a large scale. Referring to this subject the British Consul says:—"The geographical configuration of the island would almost lead to the anticipation that some less succulent plant than the cane should supersede it in the district of Guayama. Some of the most fertile lands of the island are situated in it, and in favourable seasons no other part of Porto Rico can rival its fecundity; but the island is divided from east to west by a range of mountains, the highest of which, Laquillo, is at the extreme east, and at the southern foot of this mountain Guayama is situated. The trade winds blowing from the north-east cause the rain clouds to strike the northern side of Laquillo, and they are carried along the northern face of the Sierra, a limited portion passing over their summits to the south side. Thus Guayama and Ponce are subject to drought. In the rich and populous district of Ponce this natural impediment has been overcome by an efficient system of irrigation, but Guayama is less favourably situated in all respects;

its position immediately south of Laquillo too often occasions the drought to continue, the soil is burnt up and divested of all fertility, and the residents are neither sufficiently rich nor sufficiently numerous to artificially irrigate their lands as their neighbours in Ponce have done. The consequence is, that the crops are very uncertain in their yield, and it is expected that if something is not done to ensure irrigation, there will very soon be no produce at all."

WE have received a copy of the rules of the Metropolitan Scientific Association, the object of which is announced to be "the investigation and promotion of the study of the Physical Sciences, including Astronomy, Geology, Chemistry, the various departments of Natural History, and Biology." Lectures are to be given, and meetings for discussion to be held. The subscription is fixed at 5s. a year for members and 3s. 6d. a year for associates. Mr. W. R. Birt, F.R.A.S., is the president, and the hon. sec., to whom all communications respecting the Association should be addressed, is Mr. C. W. Stidstone, 13, Moorgate Street, E.C.

THE ash of the better coals of the American carboniferous age appears to be derived wholly from the plants which formed them. According to analyses by many chemists (quoted by Prof. Dana, in the last edition of his "Geology"), made on lycopods, ferns, equisetas, mosses, conifera, &c., there is in them an average quantity of silica and alumina, such that if the plants were converted into coal it would amount to 4 per cent. of the whole, and the whole ash would be 4·75. Many analyses of bituminous coal show but 3 per cent. of ash and 4·5 is an average. Hence it follows:—(1) That the whole of the impurity in the best coals may have been derived from the plants; (2) the amount of ash in the plants was less than the average of modern species of the same tribes; (3) the winds and waters for long periods contributed almost no dust or detritus to the marshes. In that era of moist climate and universal forests there was hardly any chance for the winds to gather dust or sand for transportation.

THE *Medical Press* draws attention to a new tonic medicine under the name of *Boldo*. The tree is said to be found on isolated mountain regions in Chili; the bark, leaves, and blossoms possessing a strong aromatic odour, resembling a mixture of turpentine and camphor. The leaves contain also a large quantity of essential oil. The alkaloid obtained from the plant is called "Baldine." Its properties are chiefly as a stimulant to digestion and having a marked action on the liver. Its action was discovered rather accidentally—thus: some sheep which were liver diseased were confined in an inclosure which happened to have been recently hedged with boldo twigs. The animals ate the leaves and shoots, and were observed to recover speedily. Direct observations prove its action: thus, one gramme of the tincture excites appetite, increases the circulation and produces symptoms of circulatory excitement, and acts on the urine, which gives out the peculiar odour of boldo. Though we have not seen any specimens of the boldo as imported, there seems little doubt but that it is the *Boldoa fragrans*, a Monimiaceous tree, the Chilian name of which, however, is usually written *Boldu*. The leaves, which are rough, are opposite, ovate, and are borne on short stalks. The plant is dioecious, and the flowers are borne in axillary racemes. All parts of the tree are fragrant; hence its specific name. The little berries are eaten, the bark is used for tanning, and the wood is considered by the natives superior to any other for making charcoal.

A LARGE monumental fountain, ornamented by the celebrated sculptor Carpeaux, has been erected on the Observatoire Place at Paris. It represents Europe, Asia, Africa, and America rotating the globe, which they carry on their heads, and is very effective; but in spite of M. Le Verrier's protestations, they are

rotating the globe from east to west, according to the Ptolemean theory.

THE Khedive of Egypt has given his cordial support to the English Government Transit of Venus Expedition in Egypt. He has furnished the principal station on Mokattam Heights, 600 ft. above Cairo, with tents, a guard, and a mounted escort, and is making a telegraph line to connect that station with Greenwich, through the Submarine, Gibraltar, and Malta Cable. His Highness has also sent a steamer to tow the Thebes branch of the expedition to their destination, and he has brought all the huts and instruments up by special train from Suez.

SIR DOUGLAS FORSYTH'S Yarkand curiosities, illustrative of the ethnology of the regions he visited, will be shortly sent from India to South Kensington.

WE are glad to see that Mr. T. H. Ince, furrier, of Oxford Street, has entered the lists as a technical educator, having just issued a neat booklet containing well-compiled, and on the whole trustworthy, information concerning the animals whose skins he makes use of in his trade. Many who read Mr. Ince's brochure will be surprised at the great variety of animals, both British and foreign, whose skins are, in one way or another, turned to the uses of an advanced and luxurious civilisation.

AT its last sitting the Council of the Paris Observatory declared that the Meridian Service is not in a good condition. M. Leverrier, therefore, has written to the Minister for Public Instruction, advising him to ask M. Loewy, a member of the Institute, and the head of the Meridian Service, to resign if he does not give up the direction of the *Connaissance des Temps*—both offices being too much for one man, however zealous and learned.

AN immense number of errors have been discovered by M. Leverrier in the stellar observations, which were ready for printing, and which were made before the reorganisation of the Paris Observatory was completed. All these observations will be subjected to a most careful scrutiny, and many will be rejected altogether. The correct observations will not be printed before further reductions are made. A special credit of 15,000f. will be asked from the National Assembly for that special purpose, and will certainly be granted.

THE several French public administrations have received instructions to favour men who have been non-commissioned officers in the army in making subsidiary appointments in their offices. In some cases competitive examinations will be established for these places.

THE tanks of the Manchester Aquarium have just been enriched by a remarkably fine specimen of the Angler (*Lophius piscatorius*), over 4 ft. in length. The fish is in the best possible condition, and was obtained by the curator, Mr. W. Saville Kent, from the Royal fish weirs at Colwyn Bay. It is the first and only example of the species on exhibition at any of the many aquaria now established, and many interesting data will no doubt be derived from the observation of its habits for the first time in confinement.

THE additions to the Zoological Society's Gardens during the past week include a Nisnas Monkey (*Cercopithecus pyrrhonotus*) from Nubia, presented by Dr. R. F. Mayne; a Bengalese Leopard Cat (*Felis bengalensis*) and an Egyptian Cat (*Felis chaus*) from India, a Leadbeater Cockatoo (*Cacatua leadbeateri*) from Australia, deposited; a pair of Bar-headed Geese (*Anser indicus*) from India, and three Night Parrots (*Stringops habroptilus*) from New Zealand, purchased. These last-named birds form the finest collection of the species ever seen in this country.